

TEXTURED-GRAIN-POWDER METALLURGY  
TANTALUM SPUTTER TARGET

Abstract

The sputter target includes a tantalum body having tantalum grains formed from consolidating tantalum powder and a sputter face. The sputter face has an atom transport direction for transporting tantalum atoms away from the sputter face for coating a substrate. The tantalum grains have at least a 40 percent (222) direction orientation ratio and less than a 15 percent (110) direction orientation ratio in an atom transport direction away from the sputter face for increasing sputtering uniformity, the tantalum body being free of (200)-(222) direction banding detectable by Electron Back-Scattering Diffraction and wherein the sputter target has a purity of at least 99.99 (%) percent.